



Working for the environment and against safety: How compliance affects health and safety on board ships



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ARTICLE INFO

Article history:

Received 5 October 2015
Received in revised form 23 December 2015
Accepted 31 March 2016
Available online 4 April 2016

Keywords:

Environmental compliance
Workplace safety
Job stress
Work intensification
Seafarers
Shipping industry

ABSTRACT

This paper explores job conditions that influence health and well-being in the specific context of workers fulfilling environmental protection requirements on board ships. The aim is to understand how environmental compliance might compromise health and safety in the workplace. High-involvement work practices are known to affect occupational health and well-being adversely through increased stress. However, the nature and extent of job stress attributable to the activity of environmental compliance has not been previously examined among workers performing the task occasionally and as non-specialists. A case study using qualitative semi-structured interviews was implemented. Forty-one interviews including 34 ship crews and 7 managers were conducted at a UK based global shipping company and aboard two of its ships. Thematic analysis was incorporated to analyse the data. Five thematic categories reflecting job conditions which ship crews and their managers described as potentially influencing the work experience associated with environmental compliance emerged from the interviews: (1) design of tasks, (2) management style, (3) interpersonal relationships, (4) career concerns, and (5) physical conditions. On balance, the paper concludes that environmental compliance does appear to influence the health and well-being of ship crews in negative ways, in particular by inducing job demands which add to the heavy workload and long working hours that ship crews are already faced with. Understanding the impact of compliance on longer term health is essential.

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1. Introduction

This paper examines job conditions associated with environmental protection on board ships and asks how environmental compliance might compromise safety. The aim is to better understand the influence on stress, well-being, and injury in the workplace. Researchers and safety practitioners tend to agree that work-related stress may be the outcome of the worker's interaction and response to working conditions. However, the extent to which personal and situational factors occurring within and beyond the workplace environment can influence this continues to be debated.

In their study of community health workers in China, Li and colleagues show that higher levels of stress among professionals could often be directly attributed to the work task and role they were involved in and in their workplace relationships (Li et al., 2014). While working conditions may play a primary role in causing job stress, there are often individual and other situational factors which can intervene to intensify or mitigate the effects of stressful working conditions. Examples include work-life balance;

support from managers and colleagues; and a positive outlook. In the shipping industry, for example, the nature of seafaring as a career and the peculiarities of the shipboard environment itself show that these factors are inherently central and may contribute to strengthening the exposure to stressful working conditions. Unlike land-based workers, sea-going personnel have to work and live in their place of work – that is, on board ships, geographically mobile units which are operated remotely from their managers and supervisors. Additionally, seafarers have to be away from their support network of family and friends for several months while they dwell in very isolated and dangerous physical conditions which tend to provoke anxiety.

The general view among safety practitioners is that job stressors can have a direct influence on worker safety and health. The National Institute for Occupational Safety and Health (NIOSH) has identified some of these job stressors to be associated with one or more of the following conditions. First, there is the issue of how work tasks are designed, that is whether workers perceive the tasks to be meaningful and have control over it, and whether the load is commensurate with the time required to complete it. The absence of worker participation in decisions affecting the job they do, and the lack of support from colleagues and supervisors

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have also been acknowledged as important considerations (NIOSH, 1999).

Many studies which have looked at the relationship between job stress and health support the influence of the above job conditions. Studies about health and stress at work in land-based sectors have demonstrated that occupational stress could be a major cause of ill-health at work. For example, in the Bristol studies, strong associations were found between high job stress and a number of health conditions, including gastro-intestinal symptoms (Smith et al., 2000). Similar observations have been made in the Whitehall studies where low control in the workplace was found to be associated with increased risk of heart disease among British civil servants (Bosma et al., 1997; Kuper and Marmot, 2003). Comparing different sectors of the workforce, another study found that the incidence rates of heart disease were greater for factory workers than in civil servants (French–Belgian Collaborative Group, 1982). Again, such findings are consistent with the results of earlier research on associations between job control and heart disease (Karasek et al., 1981; Karasek, 1990). Taken together these studies suggest that psychologically demanding jobs that allow employees little control over the work process increase the risk of harm.

While the effect of job stress on health has been mostly documented in terms of its contribution to chronic health problems, there is a growing concern that stressful working conditions interfere with safe work practices and can set the stage for injuries at work. However, the evidence is not strong. A review of the shipping literature concludes that the extent to which factors such as fatigue and stress can influence accidents and other hazardous occurrences in the industry is generally recognised but has not been established (Hetherington et al., 2006). Nonetheless, individual (lay) accounts of stress at work point to more than just a departure from physical well-being. In their study of working adults, Kinman and Jones show that job stress could be attributed to the work experience (Kinman and Jones, 2005). One-third of participants described stress in terms of the experience of negative conditions in the workplace, including pressure, heavy workload and an unsatisfactory physical environment (pp. 107–108). However, only a small number of participants in their study (20%, p. 108) perceived stress in terms of the experience of ill-health.

In the offshore sector, research has been conducted into the consequences of stressful working conditions but earlier studies have not sufficiently addressed the influence from uncertainties that surround job expectations or from having to deal with rapid organisational changes affecting work, which potentially may lead to poorer health and exposure to hazards. Therefore this paper makes an important contribution in examining the influence of job conditions associated with environmental compliance on stress, well-being, and injury on board ships.

2. Stress, health and employee well-being in environmental performance

2.1. Occupational and organisational factors

Employees are among the most important influencing groups in the environmental practices of firms (Buzzelli, 1991). Workers respond positively to a company's environmental programmes by complying with the requirements, which can range from paper reduction to recycling or efficient use of energy in the workplace. Notwithstanding, employee well-being has been overlooked in the research on the effectiveness of environmental programmes in the workplace. Several studies emphasise the interaction between workers fulfilling the requirements and the associated management systems but mostly in the context of understanding why the workers are reluctant to take up the procedures. The

potential for dissatisfaction and harm to employees is often neglected.

Occupational health problems are common among workers performing environmentally-friendly activities. Epidemiological studies of workers in the recycling industry highlight reports of severe pulmonary diseases among workers in garbage sorting plants from airborne microorganisms in decaying waste (see, for example, Malmros et al., 1992). Employees in landfill sites have also been reported to be at risk of musculoskeletal and gastrointestinal problems (Poulsen et al., 1995; Porta et al., 2009). In their study of sewage workers at wastewater treatment plants on land, Albatany and El-Shafie found a high risk of occupational infections and cardiopulmonary diseases among these workers (Albatany and El-Shafie, 2011). But there are additional waste types and more complex sustainability practices requiring the attention of employees working on board ships. Examples are: energy efficiency, emissions reduction, prevention of pollution from invasive species transported in ships' ballast, and oil and chemical pollution prevention. And it is the various waste streams and often varied management practices which ship staff are confronted with as non-specialists, and their intermittent exposure to potential hazards, that makes the shipping sector an interesting case to explore.

The relationship between stressful working conditions and ill-health has been documented in the context of shipboard workers. Some of these studies have focused on health problems relating to working conditions that contribute to fatigue among seafarers. In an assessment of the prevalence of fatigue in seafaring populations, Wadsworth and her colleagues link fatigue to poor health outcomes and longer term individual ill-health. Their study found job characteristics specific to seafaring (that is, shorter tour length and poor sleep quality) to be associated with both acute fatigue and longer term fatigue (Wadsworth et al., 2008). Significant in this assessment of fatigue among offshore workers is the necessity to account for the full extent of its occupational impacts. Stressful working conditions at sea may not only affect the individual health and job performance but can also impact the general safety and well-being of others.

Earlier studies have linked job stress to organisational changes in the nature of work. For example, in their studies of workers in the financial industry, McCabe and Wilkinson show that the implementation of new work processes – in this case, total quality management (TQM) – caused employees to feel that they were being given too much work to do (McCabe and Wilkinson, 1997). In the maritime sector, research has also linked organisational changes in the workplace to negative feelings among ship crews. In Knudsen's study of the implementation of safety management systems on board ships, seafarers were found to interpret company safety procedures as intruding and constraining (Knudsen, 2009). This suggests that changes in work processes which reduce the opportunity to utilise one's skills at work could render the work experience onerous and stressful for affected employees.

Increased job strain has also been associated with work intensification. In their study of New Zealand employees, Macky and Boxall show that employees are likely to be unhappy with their jobs and to experience higher stress and fatigue in situations where they feel overburdened, where managers place stronger demands on their time, and where there is pressure to work longer hours (Macky and Boxall, 2008). Another study which found associations between work intensification and stress among Canadian nurses highlights the importance of workload and organisational support in contributing to stress (Zeytinoglu et al., 2007).

In general, a specific work situation may be experienced as stressful where work demands are perceived as not correspondent with the competencies necessary to fulfil the task, or where workers have little control and receive inadequate support for the job performance (Cox et al., 2000). In their study of work stress among

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